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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,185	06/20/2001	Akira Nanba	107413-00000	3471

7590 08/25/2004

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EXAMINER	
FAN, CHIEH M	

ART UNIT	PAPER NUMBER
2634	4

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/857,185	NANBA ET AL.	
	Examiner	Art Unit	
	Chieh M Fan	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11-13* is/are allowed.

6)☒ Claim(s) *1-4 and 6* is/are rejected.

7)☒ Claim(s) *5 and 7-10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/06202001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 2-10 are objected to because of the following informalities:

Regarding claim 2, "a frequency error signal" in line 5 should be changed to --- the frequency error signal --- since such limitation has been recited in claim 1.

Regarding claim 9, "a frequency error signal" in lines 2-3 should be changed to --- the frequency error signal --- since such limitation has been recited in claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchins et al. (U.S. Patent No. 6,118,745, "Hutchins" hereinafter) in view of Masatomo (JP 06-325506, listed in the IDS filed 6/20/01; note that the examiner assumes the applicants have translation of this reference since it is provided by the applicants).

Regarding claim 1, Hutchins teaches a digital phase locked loop circuit (120 in Fig. 3) for generating sampling clock signals used with respect to a plurality of channels (112 in Fig. 3) for sampling reproduced information simultaneously from a plurality of tracks (col. 5, lines 13-15) of a recording medium, comprising:

an average frequency computing circuit (126 in Fig. 3, col. 5, lines 33-35) for calculating an average frequency of the phase locked sampling clock signals in selected channel and feeding back the calculated average to the phase locked loop.

Hutchins does not teach that the average frequency computing circuit outputs a frequency error signal with respect to any channel in which the frequency of the sampling clock signal is outside an allowable frequency range.

In the same field of endeavor, Masatomo teaches the calculation of average frequency does not include the channels having frequencies outside the permitted frequency range (see CONSTITUTION of the English abstract and paragraphs 0017-0025, especially 0019-0020) so as to obtain a more accurate average frequency (see PURPOSE of the abstract). Note that it is well known that the period is the inverse of the frequency. The average period detection taught by Masatomo is therefore considered equivalent to the average frequency detection or at least obviously interchangeable. Masatomo also teaches generating an error signal (output of 7 in Fig. 3 or 4) with respect to any channel in which the frequency is outside the allowable frequency range such that the calculation of average frequency does not include the channels having frequencies outside the permitted frequency range (paragraphs 0019-0020).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to output a frequency error signal with respect to any channel in which the frequency of the sampling clock signal is outside an allowable frequency range, as taught by Masatomo, so as to obtain a more accurate average frequency and consequently to control the digital PLL to generate more accurate clock signals.

Regarding claim 2, Masatomo also teaches a comparator (7 in Fig. 3 or 4) for comparing the frequency of each channel with allowable frequency range and outputting the frequency error signal.

Regarding claim 3, as describe above in the rationale applied to claim 1, Masatomo teaches the calculation of average frequency does not include the channels having frequencies outside the permitted frequency range (paragraphs 0019-0020).

Regarding claim 4, Masatomo also teaches a register (8 in Fig. 4, paragraph 0024) for adjustably setting a value representative of an allowable deviation. Also note that the register receives the average frequency through a filter 9 in Fig. 4.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchins et al. (U.S. Patent No. 6,118,745, "Hutchins" hereinafter) in view of Masatomo (JP 06-325506, listed in the IDS filed 6/20/01) as applied to claims 1 and 2 above, and further in view of Turcotte et al. (U.S. Patent No. 5,754,138, "Turcotte" hereinafter).

As explained above in the rationales applied to claims 1 and 2, Hutchins in view of Masatomo teaches the claimed invention, but does not teach that the average

frequency circuit divides the plurality of channels into a plurality of groups each of which includes at least two channels, the frequencies of the sampling clock signals for the plurality of channels being summed repetitively and cumulatively group by group for calculating the average frequency.

However, such limitation is merely directed to an adder tree structure, which is well known in the art. Turcotte teaches an adder tree allows a plurality of signals to be summed simultaneously. An adder tree has advantage because it presents less of a delay in providing output sums (col. 15, lines 30-44).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the adder tree type structure as claimed to calculate the average frequency so as to provide a faster calculation.

Allowable Subject Matter

5. Claims 11-13 are allowed.

6. Claims 5 and 7-10 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Note that claims 5 and 7-10 also need to be rewritten to overcome the claim objections above.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hutchins (U.S. Patent No. 6,246,733), Takashi et al. (U.S. Patent No. 5,572,157).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M Fan whose telephone number is (703) 305-0198. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Chieh M Fan
Primary Examiner
Art Unit 2634

cmf
August 21, 2004